

Amendments to the Claims

30. (Currently Amended) In a device for enhancing intelligibility of speech contained in an audio signal perceived by a subject via a communications path that includes the device, the improvement ~~wherein comprising~~

A. the device applies to the audio signal via a gain adjustment a frequency-wise gain (hereinafter, "applied frequency-wise gain") made by a process that maximizes an intelligibility metric of the communications path, where the intelligibility metric is a function of the relation:

$$AI = V \times E \times F \times H$$

where,

AI is the intelligibility metric,

V is a measure of audibility of the speech contained in the audio signal and is associated with a speech-to-noise ratio in the audio signal,

E is a loudness limit associated with the speech contained in the audio signal,

F is a measure of spectral balance of the speech contained in the audio signal,

H is a measure of any of (i) intermodulation distortion introduced by an ear of the subject, (ii) reverberation in the medium, (iii) frequency-compression in the communications path, (iv) frequency-shifting in the communications path and (v) peak-clipping in the communications path, (vi) amplitude compression in the communications path, (vii) any other

noise or distortion in the communications path not otherwise associated with V, E and F, and

B. the device outputs the audio signal as transformed with the applied frequency-wise gain.

36. (Currently Amended) In a device for enhancing intelligibility of sound contained in an audio signal perceived by a subject via a communications path that includes the device, the improvement ~~wherein comprising~~

A. the device applies to the audio signal via a gain adjustment a frequency-wise gain (hereinafter, "applied frequency-wise gain") made by a process that maximizes an intelligibility metric of the communications path, where the intelligibility metric is a function of the relation:

$$AI=V \times E \times F \times H$$

where,

AI is the intelligibility metric,

V is a measure of audibility of the sound contained in the audio signal and is associated with a sound-to-noise ratio in the audio signal,

E is a loudness limit associated with the sound contained in the audio signal,

F is a measure of spectral balance of the sound contained in the audio signal,

H is a measure of any of (i) intermodulation distortion introduced by an ear of the subject, (ii) reverberation in the medium, (iii) frequency-compression in the communications path, (iv) frequency-shifting in the communications path and (v) peak-clipping in the communications path, (vi) amplitude

compression in the communications path, (vii) any other noise or distortion in the communications path not otherwise associated with V, E and F, and

B. the device outputs the audio signal as transformed with the applied frequency-wise gain.